

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-15 (canceled).

Claim 16 (currently amended): ~~The branching filter according to claim 15,~~
~~wherein A branching filter comprising:~~
~~a transmitting filter; and~~
~~a receiving filter; wherein~~
~~piezoelectric thin film resonators defining the transmitting filter and the receiving~~
~~filter and including at least one piezoelectric thin film sandwiched between at least one~~
~~pair of opposed electrodes are arranged in a ladder configuration on an opening or a~~
~~recess of a substrate, the transmitting filter and the receiving filter being connected to~~
~~an antenna terminal in parallel;~~
~~the piezoelectric thin film resonators defining the transmitting filter and the~~
~~piezoelectric thin film resonators defining the receiving filter are made of different~~
~~materials from each other; and~~
 the piezoelectric thin film resonators defining the transmitting filter and the
 piezoelectric thin film resonators defining the receiving filter have different piezoelectric
 films.

Claim 17 (previously presented): The branching filter according to claim 16,
wherein the piezoelectric film of the piezoelectric thin film resonators defining the
transmitting filter includes AlN and the piezoelectric film of the piezoelectric thin film
resonators defining the receiving filter includes ZnO.

Claim 18 (currently amended): The branching filter according to claim ~~15~~16,

June 18, 2007

Reply to the Office Action dated April 4, 2007

Page 3 of 10

wherein the material of the electrodes is different between the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter.

Claim 19 (previously presented): The branching filter according to claim 18, wherein the acoustic impedance of the material of the electrodes is different between the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter.

Claim 20 (previously presented): The branching filter according to claim 18, wherein the frequency of the pass band of the receiving filter is higher than the frequency of the pass band of the transmitting filter, and the acoustic impedance of the material of the electrodes defining the receiving filter is higher than the acoustic impedance of the material of the electrodes defining the transmitting filter.

Claim 21 (currently amended): ~~The branching filter according to claim 15, wherein~~ A branching filter comprising:

a transmitting filter; and

a receiving filter; wherein

piezoelectric thin film resonators defining the transmitting filter and the receiving filter and including at least one piezoelectric thin film sandwiched between at least one pair of opposed electrodes are arranged in a ladder configuration on an opening or a recess of a substrate, the transmitting filter and the receiving filter being connected to an antenna terminal in parallel;

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter are made of different materials from each other; and

the piezoelectric thin film resonators defining the transmitting filter use second harmonic waves and the piezoelectric thin film resonators defining the receiving filter

Application No. 10/520,015
June 18, 2007
Reply to the Office Action dated April 4, 2007
Page 4 of 10

use fundamental waves.

Claim 22 (previously presented): ~~The branching filter according to claim 15, wherein~~ A branching filter comprising:

a transmitting filter; and

a receiving filter; wherein

piezoelectric thin film resonators defining the transmitting filter and the receiving filter and including at least one piezoelectric thin film sandwiched between at least one pair of opposed electrodes are arranged in a ladder configuration on an opening or a recess of a substrate, the transmitting filter and the receiving filter being connected to an antenna terminal in parallel;

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter are made of different materials from each other; and

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter further comprise a different insulating film on the opening or the recess of the substrate.

Claim 23 (previously presented): The branching filter according to claim 22, wherein the insulating film of the piezoelectric thin film resonators defining the receiving filter comprises SiO₂.

Claim 24 (previously presented): The branching filter according to claim 22, wherein the insulating film of the piezoelectric thin film resonators defining the receiving filter comprises two layers including an SiO₂ layer adjacent to the piezoelectric thin film and an Al₂O₃ layer adjacent to the SiO₂ layer.

Claim 25 (previously presented): The branching filter according to claim 22, wherein the insulating film of the piezoelectric thin film resonators defining the receiving

June 18, 2007

Reply to the Office Action dated April 4, 2007

Page 5 of 10

filter comprises two layers including an SiO₂ layer adjacent to the piezoelectric thin film and an AlN layer adjacent to the SiO₂ layer.

Claim 26 (previously presented): The branching filter according to claim 22, wherein the insulating film of the piezoelectric thin film resonators defining the transmitting filter comprises two layers including an AlN layer adjacent to the piezoelectric thin film and an SiO₂ layer adjacent to the AlN layer.

Claim 27 (previously presented): The branching filter according to claim 22, wherein the insulating film of the piezoelectric thin film resonators defining the transmitting filter comprises two layers including an Al₂O₃ layer adjacent to the piezoelectric thin film and an SiO₂ layer adjacent to the Al₂O₃ layer.

Claim 28 (currently amended): A communication device comprising the branching filter according to claim 1516.

Claim 29 (canceled).

Claim 30 (currently amended): ~~The branching filter according to claim 29, wherein~~ A branching filter comprising:
a transmitting filter; and
a receiving filter; wherein
piezoelectric thin film resonators defining the transmitting filter and the receiving
filter and including at least one piezoelectric thin film sandwiched between at least one
pair of opposed electrodes are arranged in a ladder configuration on an opening or a
recess of a substrate, the transmitting filter and the receiving filter being connected to
an antenna terminal in parallel;

the piezoelectric thin film resonators defining the transmitting filter and the
piezoelectric thin film resonators defining the receiving filter use different waves from

Application No. 10/520,015
June 18, 2007
Reply to the Office Action dated April 4, 2007
Page 6 of 10

each other; and

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter have different piezoelectric films.

Claim 31 (previously presented): The branching filter according to claim 30, wherein the piezoelectric film of the piezoelectric thin film resonators defining the transmitting filter includes AlN and the piezoelectric film of the piezoelectric thin film resonators defining the receiving filter includes ZnO.

Claim 32 (currently amended): The branching filter according to claim 2930, wherein the material of the electrodes is different between the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter.

Claim 33 (previously presented): The branching filter according to claim 32, wherein the acoustic impedance of the material of the electrodes is different between the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter.

Claim 34 (previously presented): The branching filter according to claim 32, wherein the frequency of the pass band of the receiving filter is higher than the frequency of the pass band of the transmitting filter, and the acoustic impedance of the material of the electrodes defining the receiving filter is higher than the acoustic impedance of the material of the electrodes defining the transmitting filter.

Claim 35 (currently amended): ~~The branching filter according to claim 29,~~
wherein A branching filter comprising:
a transmitting filter; and

Application No. 10/520,015
June 18, 2007
Reply to the Office Action dated April 4, 2007
Page 7 of 10

a receiving filter; wherein

piezoelectric thin film resonators defining the transmitting filter and the receiving filter and including at least one piezoelectric thin film sandwiched between at least one pair of opposed electrodes are arranged in a ladder configuration on an opening or a recess of a substrate, the transmitting filter and the receiving filter being connected to an antenna terminal in parallel;

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter use different waves from each other; and

the piezoelectric thin film resonators defining the transmitting filter use second harmonic waves and the piezoelectric thin film resonators defining the receiving filter use fundamental waves.

Claim 36 (currently amended): ~~The branching filter according to claim 29, wherein~~ A branching filter comprising:

a transmitting filter; and

a receiving filter; wherein

piezoelectric thin film resonators defining the transmitting filter and the receiving filter and including at least one piezoelectric thin film sandwiched between at least one pair of opposed electrodes are arranged in a ladder configuration on an opening or a recess of a substrate, the transmitting filter and the receiving filter being connected to an antenna terminal in parallel;

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter use different waves from each other; and

the piezoelectric thin film resonators defining the transmitting filter and the piezoelectric thin film resonators defining the receiving filter further comprise a different insulating film on the opening or the recess of the substrate.

Claim 37 (previously presented): The branching filter according to claim 36, wherein the insulating film of the piezoelectric thin film resonators defining the receiving filter comprises SiO_2 .

Claim 38 (previously presented): The branching filter according to claim 36, wherein the insulating film of the piezoelectric thin film resonators defining the receiving filter comprises two layers including an SiO_2 layer adjacent to the piezoelectric thin film and an Al_2O_3 layer adjacent to the SiO_2 layer.

Claim 39 (previously presented): The branching filter according to claim 36, wherein the insulating film of the piezoelectric thin film resonators defining the receiving filter comprises two layers including an SiO_2 layer adjacent to the piezoelectric thin film and an AlN layer adjacent to the SiO_2 layer.

Claim 40 (previously presented): The branching filter according to claim 36, wherein the insulating film of the piezoelectric thin film resonators defining the transmitting filter comprises two layers including an AlN layer adjacent to the piezoelectric thin film and an SiO_2 layer adjacent to the AlN layer.

Claim 41 (previously presented): The branching filter according to claim 36, wherein the insulating film of the piezoelectric thin film resonators defining the transmitting filter comprises two layers including an Al_2O_3 layer adjacent to the piezoelectric thin film and an SiO_2 layer adjacent to the Al_2O_3 layer.

Claim 42 (currently amended): A communication device comprising the branching filter according to claim 2930.